

# RELAZIONE DI RIUNIONE / VISITA MINUTES OF MEETING / VISIT

AMSTCS-MI-CGS-027

FOGLIO

ANNEX

5

CAR	LO GAVAZZI SPACE SpA	, , , , , , , , , , , , , , , , , , ,	O OI WILL	TING / VISIT	SHEET	1 OF	Ann	ex1(1 pag
DATA – DA	:UE	LOCALITA' - LOCATION		COMMESSA - JOB		RIF REF.	Ann	ex2(32 pa
	17/10/2008  DESCRIZIONE //CC	CERI		AMS CD 2011		A STATE OF THE PARTY OF THE PAR	2011 I	
IMPIANTO PROJECT	DESCRIPTION USS /	Axial Groove	Heat Pipe	es final Installati	on	CLIENTE - CUSTO	MER	
PRC	LOCATION CERN	1				ORDINE - CONTRA	CT	
76						1/008/08/0		
SCOPO RIUNIONE PURPOSE OF MEETING						REDATTO - WRITT	EN BY	
NION	USS Axia	l Groove Hea	t Pipes fir	nal Installation	-	M.Olivier /		in
RIU	CAB Axial	Groove Heat	t Pipes de	livery @ CERN		LISTA DI DISTRIBU DISTRIBUTION LIS	ZIONE	
OPC					- 1	M.Olivier (Co	1/	
SC						E. Marchetti		
						E. Russo (A		
IDED	NOML, NA	MES	Р	OSIZIONE - POSITION		F FACE		V
PRESENTI - ATTENDED	Joe Burger	ger	AMS TCS	Responsible (AMS co	11.) 🜊	M ZAPE		1
BY BY	C. Vettore	Z 1		System engineer (CG			INU	
E ~	A. Dell'Acqua			Head (CGS)			***************************************	
RES	L.Cremonesi //	(p. H.)	AMS TCS I	PA (CGS)				***************************************
	Corrado Gargiulo C	- Fraus	AMS PA\Q	A delegate (AMS coll.	)			***************************************
UNTI EMS	ARGOME	NTI DISCUSSI – DE					A CURA	
1.	The USS Axial Groov	ve Heat Pines an	d CAB AGH	P have been transmi		ACTIO	ON BY 1)	
- 1	to CERN according to	o transport docur	nent of (ann	ex 1).	rted			
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# RELAZIONE DI RIUNIONE / VISITA MINUTES OF MEETING / VISIT

N° AMSTCS-MI-CGS-027

FOGLIO SHEET

2

DI OF 2

ANNEX Annex1(1 pag) Annex2(32 pag)

DATA - DATE

LOCALITA' - LOCATION

COMMESSA - JOB

PUNTI	17/10/2008	CERN	COMMESSA – <i>JOB</i> <b>AMS CD 2011 I</b>	RIF REF. 2011
ITEMS	ARGOM	ENTI DISCUSSI – DESCRIPTION (	OF DISCUSSION	AZIONE A CURA 1)
2	requirements.	es have been successfully in representatives with respect Mr. Burger with USS Heat	to the applicable technical	ACTION BY 1)
	installed H/W a CGS required usage/mod	of for the delivered (CAB AC sferred from CGS to the AMS S/ASI property till ASI contract ification of the installed H/W shall be executed (in any	o Collaboration. Being the ct closure, any activity that	Toda Hoda Tipes ADP

# CARLO GAVAZZI SPACE SPA

Via Gallarate, 150 - 20151 Milano (IT) - Cap. Soc. sottoscritto € 5.400.000 - Cap. Soc. versato € 3.150.000 R.E.A. 1254780 Reg. Imp. di Milano - C.F. / P.I. IT08921330158

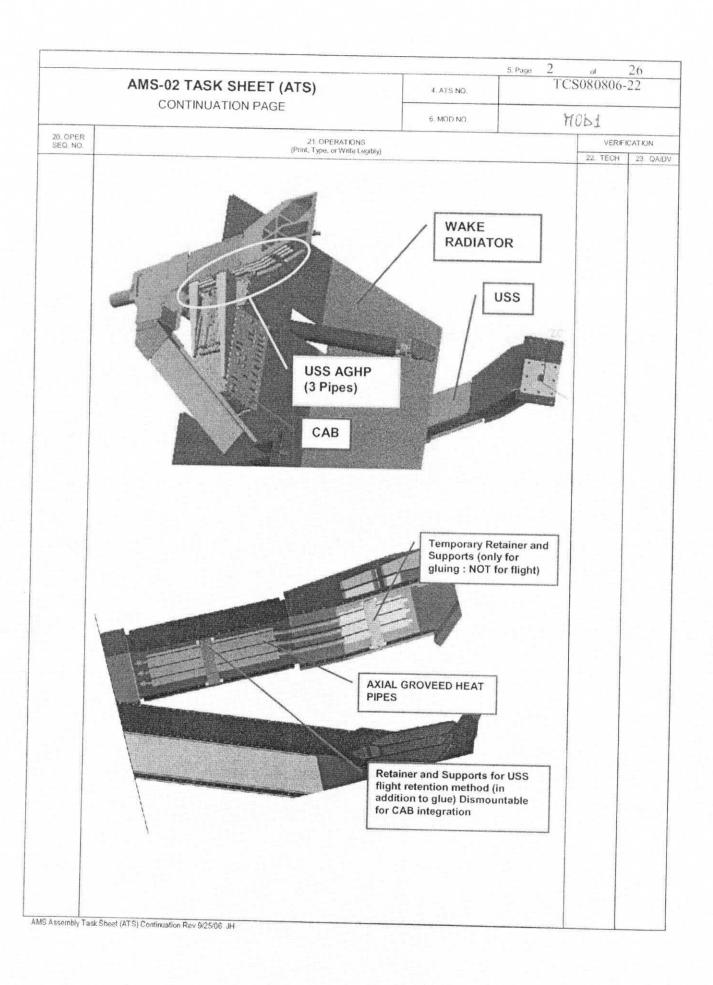
CARLO GAVAZZ

DEL TABLE DEL TRANCE  (PH Department - AMS Collaboration)  Six de PREVESSIN  P-61631 CERN FRANCE (PH Department - AMS Collaboration)  Six de PREVESSIN  F-61631 CERN GDEX - FRANCE (Receptrevessin, Claude Macari FI/LS +41 22 7675657)  ALLATIENZONE DI  Joseph Burger, PH Department 00 41 22 767 5914, mobile 00 41 76 487 0342 (79914 and 160241 mixed CERN)  As above mentioned  Corrado Carginio 00 41 22 767 (CERN AMS Responsible) mobile 00 41 76 487 0322 (79656, 1620322 inside CERN)  PP  OUANTITA  DESCRIZIONE  CORRADORE  CODICE MODELLO  POR JOHNS 1  1 2 40-AMS02 CAB AGHP , AMS 02 CAB axial grove heat pipes  ANS 02 USS AGHP , AMS 02 USS axial grove heat pipes  Notes :  Enclosed our Pro Forma Inv. n°128 (only for custom value Euro 14,000 Parts shipped according to "AST Contract 1/008/08/0"  Parts moved by our Mr. A.Dell'Acqua  Parts contained in n° wooden boxes, gross weight 8Kg/ca (total 16Kg)  NOTES SUPPLIED ACCORDING TO "AST Contract 1/008/08/0"  TO ESSTENDORE DEI BERNI  N. COLLI PESO KG. PORTO  BATE ALDEL TABASPORTO O CONSEGNA  OUR Mr. A.Dell'Acqua		DOCUMENTO	DI TRASPO	ORTO		P.I. IT08921330158 207 - e-mail: cgs@cgspace.it - http://www.cgspace.it	V
SETINAZIONE MERCE  2011 I  Site de PREVESSIN F-01631 CERN CEDEX - FRANCE (Recp.Prevessin, Claude Macari FI/LS +H1 22 7675657)  ALL'ATTENZIONE DI JOSEPH BURGET, PH Département 00 41 22 767 5914  ALL'ATTENZIONE DI JOSEPH BURGET, PH Département 00 41 22 767 5914  ALL'ATTENZIONE DI JOSEPH BURGET, PH Département 00 41 22 767 5914  ALL'ATTENZIONE DI JOSEPH BURGET, PH Département 00 41 22 767 5914  COTADO Gargiulo 00 41 22 767 (CERN AMS Responsible)  mobile 00 41 76 487 0322 (79656, 1620322 inside CERN)  PC OUANITTÀ DESCRIZIONE COENCE MODELLO  1 2 40-AMS02 CAB AGHP, AMS 02 USS axial grove heat pipes  Notes: Enclosed our Pro Forms Inv. n°128 (only for custom value Euro 14,000 Parts shipped according to 'ASI Contract 1/'008/'08/'0" Parts moved by our bir. ADell'Acqua Parts contained in n° wooden boxes, gross weight 8Kg./ea (total 16Kg)  INVIER JURIS SUPPLIED ACCORDING TO 'ASI Contract 1/'008/'08/'0" DESTENDORE DEI BEINI N. OOLLI PESO MG PORTO  COENCE MODELLO  COENCE MO	N.		A STORY	all all	DESTIN		
2011 I  2011 I  ROBERT CEIDEN CEIDEN - FRANCE (Receptivessin, Claude Macari FI/LS +41 22 7675657)  ALE TRANSPORTIO  AS above mentioned  AS above mentioned  Corrado Gargiulo 00 41 76 487 0321 (79556, 1620312) inside CERN  AS above mentioned  Corrado Gargiulo 00 41 76 487 0322 (79656, 1620312) inside CERN  Corrado Gargiulo 00 41 76 487 0322 (79656, 1620312) inside CERN  AS above mentioned  Corrado Gargiulo 00 41 76 487 0322 (79656, 1620312) inside CERN  AS above mentioned  Corrado Gargiulo 00 41 76 487 0322 (79656, 1620312) inside CERN  AS above mentioned  Corrado Gargiulo 00 41 76 487 0322 (79656, 1620312) inside CERN  AS above mentioned  Corrado Gargiulo 00 41 76 487 0322 (79656, 1620312) inside CERN  AS above mentioned  Corrado Gargiulo 00 41 76 487 0322 (79656, 1620312) inside CERN  AS above mentioned  Corrado Gargiulo 00 41 76 487 0322 (79656, 1620312) inside CERN  AS above mentioned  Corrado Gargiulo 00 41 76 487 0322 (79656, 1620312) inside CERN  CORRECTED 10 45 00 11 76 487 0322 (79656, 1620312) inside CERN  Notes:  - Enclosed our Pro Forma Inv. n°128 (only for custom value Euro 14.000  - Parts shipped according to ASI Contract 1/008/08/0'  Parts moved by our Mr. A.Dell'Acqua  Parts contained in n° wooden boxes, gross weight 8Kg./ea (total 16Kg)  Witer /ep  Le Del Trassportio  ARTS SUPPLIED ACCORDING TO 'ASI Contract 1/008/08/0'  TO ESTERIORE DEI EEN  N. COLLI PESO NG. PORTO  ESTERORE DEI EEN  N. COLLI PESO NG. PORTO  FRANCO  OUR Mr. A.Dell'Acqua  Coll Peso NG. PORTO  ONA FRANCO  OUR Mr. A.Dell'Acqua  Coll Peso NG. PORTO  ONA FRANCO  OUR Mr. A.Dell'Acqua				13/10/2008		(PH Department - AMS Collaboration)	
2011 I    Company   Compan	NS. COMMESS	SE N.				E 01/21 CERN	
Joseph Burger, PH Département 00 41 22 767 5914, mobile 00 41 76 487 0241 (75914 and 160241 inside CERN)		2011 1	46 •			(Recep.Prevessin, Claude Macari FL/18	• • • • • • • • • • • • • • • • • • • •
As above mentioned  Corado Gargiulo CO 41 22767, (CERN AMS Responsible) mobile CO 4176 487 0322 (79656, 1620322 inside CERN)  BY QUANTITA  DESCRIZIONE  CODICE MODELLO  1 2 40-AMS02 CAB AGHP, AMS 02 CAB axial grove heat pipes  40-AMS02 USS AGHP, AMS 02 USS axial grove heat pipes  Notes:  Enclosed our Pro Forma Inv. n°128 (only for custom value Euro 14.000 Parts shipped according to 'ASI Contract 1/008/08/0'  Parts moved by our Mr. A.Dell'Acqua  Parts contained in n° wooden boxes, gross weight 8Kg/ca (total 16Kg)  Vier /ep  LE DEL TRASPORTO  N. COLLI PESO KG. PORTO  TO ESTERIORE DEI BENI  N. COLLI PESO KG. PORTO  STRANCO  MITTENTE EXX DESTINATARIO VETTORE   TRASPORTO O CONSEGNA  DATA  ONA PRIMA DEL CONDUCENTE  TRASPORTO O CONSEGNA  DATA  ONA PRIMA DEL CONDUCENTE  PRAMA ONA PRIMA DEL CONDUCENTE		2011 1			ALL'ATTE	ENZIONE DI	1 22 7675657)
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Corrado Cargitulo 00 41 22 767 (CERN AMS Responsible) mobile 00 41 76 487 0322 (79656, 1620322 inside CERN)  S. ORDINE N.  PC QUANTITÀ DESCRIZIONE CODICE MODELLO  1 2 40-AMS02 CAB AGHP , AMS 02 CAB axial grove heat pipes  AVAMS02 USS AGHP , AMS 02 USS axial grove heat pipes  Notes : Enclosed our Pro Forma Inv. n°128 (only for custom value Euro 14,000) Parts shipped according to ASI Contract 1/008/08/0' Parts moved by our Mr. A.Delfl'Arqua  Parts contained in n°2 wooden boxes, gross weight 8Kg/ea (total 16Kg)  Notes : Enclosed our Pro Forma Inv. n°128 (only for custom value Euro 14,000) Parts moved by our Mr. A.Delfl'Arqua  Parts contained in n°2 wooden boxes, gross weight 8Kg/ea (total 16Kg)  Figure /ep  Note : Figure /ep  Our Mr. A. Dell'Acqua	DESTINAZIONE	MERCE				mobile 00 41 76 487 0241 (75914 and 160241	inside CERNA
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AV-AMSO2 USS AGHP, AMS 02 USS axial grove heat pipes  Notes: Enclosed our Pro Forma Inv. n°128 (only for custom value Euro 14.000) Parts shipped according to 'ASI Contract 1/'008/08/0' Parts moved by our Mr. A.Dell' Acqua Parts contained in n' wooden boxes, gross weight 8Kg./ea (total 16Kg)  Notes: Enclosed our Pro Forma Inv. n°128 (only for custom value Euro 14.000) Parts shipped according to 'ASI Contract 1/'008/08/0' Parts moved by our Mr. A.Dell' Acqua Parts contained in n' wooden boxes, gross weight 8Kg./ea (total 16Kg)  Notes: Enclosed our Pro Forma Inv. n°128 (only for custom value Euro 14.000 Parts shipped according to 'ASI Contract 1/'008/08/0' Parts moved by our Mr. A.Dell 'Acqua Parts shipped according to 'ASI Contract 1/'008/08/0' Parts moved by our Mr. A.Dell' Acqua Parts shipped according to 'ASI Contract 1/'008/08/0' Parts moved by our Mr. A.Dell 'Acqua Parts shipped according to 'ASI Contract 1/'008/08/0' Parts moved by our Mr. A.Dell' Acqua Parts shipped according to 'ASI Contract 1/'008/08/0' Parts moved by our Mr. A.Dell' Acqua Parts shipped according to 'ASI Contract 1/'008/08/0' Parts moved by our Mr. A.Dell' Acqua Parts shipped according to 'ASI Contract 1/'008/08/0' Parts moved by our Mr. A.Dell' Acqua Parts shipped according to 'ASI Contract 1/'008/08/0' Parts moved by our Mr. A.Dell' Acqua Parts shipped according to 'ASI Contract 1/'008/08/0' Parts moved by our Mr. A.Dell' Acqua Parts shipped according to 'ASI Contract 1/'008/08/0' Parts moved by our Mr. A.Dell' Acqua Parts shipped according to 'ASI Contract 1/'008/08/08/0' Parts moved by our Mr. A.Dell' Acqua Parts shipped according to 'ASI Contract 1/'008/08/08/08/08/09 Parts moved by our Mr. A.Dell' Acqua P	2	2	45				
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Parts moved by our Mr. A.Dell'Acqua Parts contained in n wooden boxes, gross weight 8Kg./ea (total 16Kg)  ARIS SUPPLIED ACCORDING TO 'ASI Contract 1/008/08/0' TO ESTERIORE DEI BENI ALC DELL PESO KG. PORTO Denote)  PORTO A MEZZO: MITTENTE XX DESTINATARIO VETTORE  TRASPORTO O CONSEGNA  DATA  ORA FIRMA FIRMA OUR Mr. A.Dell'Acqua  OUR Mr. A.Dell'Acqua  OUR Mr. A.Dell'Acqua  Parts moved by our Mr. A.Dell'Acqua  OUR Mr. A.Dell'Acqua  Parts moved by our Mr. A.Dell'Acqua  Parts contained in n wooden boxes, gross weight 8Kg./ea (total 16Kg)				Parts shipped a	ro Forma	Inv. n°128 (only for custom value Euro 14.000)	
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DOCUMENTO di TRASPORTO		(D.P.R. n. 472	del 14/08/96	6)	1-11-	RMA DEL DESTINATARIO	( )

1º Bianca per destinatario – 2º Verde per vettore – 3º Gialla per mittente

# ANNEX 2 TO ANSTES-171-CGS-027 26+5 PACCS

	ROJECT SA-A		2. JPIC CODE AMS	AMS-02 TASK SHEET (AT	ΓS)	
3.	Α	CONFIGU	JRATION CHANGE	☐ 4 ATS NO. TCS080806-22 5	PAGE 1	- 3/
T Y	PERM	ANENT		E MON CHEST ON THE STATE OF THE	PAGE 1	of 26
P E	В	NONCON	FIGURATION CHANGE	MOP4		
	PART NA			11. Sub Detector Name 12. SERIAL/LOT NO.		
		JSS parts				
	THE CHOPS	DCC DOSOIN	ENIS			
	SS AC		TEGRATION C	NTO AMS02		
20.	OPER			21. OPERATIONS		
SEC	Σ. NO.			(Print, Type, or Write Legibly)	22. TECH	FICATION 23 QAZDV
		SCOP	E			2.3 (2.01.74
			AGHP Fit Check	in two different phases as: onto the USS to the USS (with adhesive ECCOBOND 285 Catalyst 23LV)  USS AGHP AREAS (See Detail A)  WAKE RADIATOR  USS		
24 00	IIGINATO	D				
		ni/C.Ve	ettore $\subseteq$	DATE 25. FINAL ACCEPTANCE STAMP AND DATE		
× 600				APPROVALS (Printed or Typed and Signed)		
	ettore	NGINEER	4	DATE 27. QUALITY ENGINEER  C. GARGIULO Cf	DAT	ГЕ
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				31.		
MS Ass	embly Ta	sk Sheet (AT	S) Rev 9/25/06 JH			



#### TCS080806-22 AMS-02 TASK SHEET (ATS) 4 ATS NO CONTINUATION PAGE MOD 1 6. MOD NO. 20. OPER SEQ. NO. VERIFICATION 21. OPERATIONS (Print, Type, or Write Legibly) 22. TECH 23. QA/DV **APPLICABLE DOCUMENTS** The following documents in the latest applicable issue form a part of this plan to the extent specified herein: AD Document ID Title Issue /Rev 22-AMS02TCS-000.10.00 USS Heat Pipe Temporary Retainer 2 48-AMS02TCS-000.02.00 USS Heat Pipe Retainer 3 48-AMS02TCS-000.03.00 Heat Pipe Bottom Support 1 4 48-AMS02TCS-000.04.00 Heat Pipe Bottom Support 2 5 IEF001-D-093 2 **HEAT PIPE** IEA 001/08 IEA 002/08 6 IEF001-D-094 3 **HEAT PIPE** IEA 003/08 7 Technical data sheet N/A ECCOBOND 285 - Thermally Conductive, Epoxy Paste Adhesive by Emerson & Cuming Technical data sheet N/A Standard Catalysts by Emerson & Cuming EC180655 9 N/A ECCOBOND 285 Material Safety Data Sheet 10 EC600441 May 22<sup>nd</sup> CATALYST 23LV Material Safety Data Sheet 2008 11 Material Code: 04546 N/A ECCOBOND 285 with 23LV Catalyst -Material Definition Properties 12 AMSTCS-PR-CGS-019 1/ Eccobond 285 Preparation procedure 48-AMS02TCS-000.00.00 13 CAB TCS Installation Assy (sheet 1) 14 NASM8846 Insert, Screw-Thread Helical Coil 15 MSFC-STD-486B Standard, Threaded Fasteners, Torque Limit For STANDARD AND SPECIAL TOOL For the hardware installation standard tools shall be used. Where, the use of standard tool in not possible, special tools may be employed. Each special tool has to be identified with its Drawing Number marked, in indelible way, on the same tool. All the tools have to be clean and free from dust and grease. For the present installation only standard tools are needed

AMS Assembly Task Sheet (ATS) Continuation Rev 9/25/06 JH

#### 26 5 Page TCS080806-22 AMS-02 TASK SHEET (ATS) 4. ATS NO CONTINUATION PAGE MOB1 6. MOD NO. 20. OPER SEQ. NO. VERIFICATION 21 OPERATIONS (Print, Type, or Write Legibly) 22. TECH 23. QA/DV LOCKING TORQUE MEASUREMENT Locking Torque is the torque applied on bolts while they are turning and passing through Helicoil or nut. The following coupling configuration shall be considered in the present integration: Screw and Self Locking Helicoil o Screw NAS1954C3 and Helicoil MS21209F4-10 o Screw NAS1954C6 and Helicoil MS21209F4-10 Screw NAS1954C9 and Helicoil MS51830CA202L Screw NAS1352C08-10 and Helicoil MS21209C0820. The expected Locking Torque value, relative to all the used screws, are reported in the following Table These values are an output from specification NASM8846 (AD[14]) SCREW SCRE HELICOIL MIN. LOCKING MAX, LOCKING TYPE W SIZE TYPE TORQUE **TORQUE** [mm] [Nm] [Nm] NAS1954C3 6.35 MS21209F4-10 0.39 3.38 NAS1954C6 6.35 MS21209F4-10 0.39 3 38 NAS1954C9 6.35 MS51830CA202L 0.39 3.38 NAS1352C08-10 4.16 MS21209C0820 0.17 1.01 Table 1 Since it is a continuous torque, it is necessary to measure it with an analog torque wrench, obtaining the maximum torque applied during this operation. The Locking Torque value has to be reported in this ATS and added then to the specified Seating Torque The below Step by Step procedure, have to be followed for all the fittings to be used for the retainers and supports needed for the AGHP installation. STEP **OPERATION** 1 Clean screws, nuts and washers in an Isopropyl Alcohol 2 Let screws, nuts and washers dry on a clean towel 3 Perform a screws and washers visual Inspection to check if any non conformance is present 4 Install the part on the AMS02 hardware an screw down, by hand, screws and nuts 5 Measure the Locking Torque and register the value in this ATS

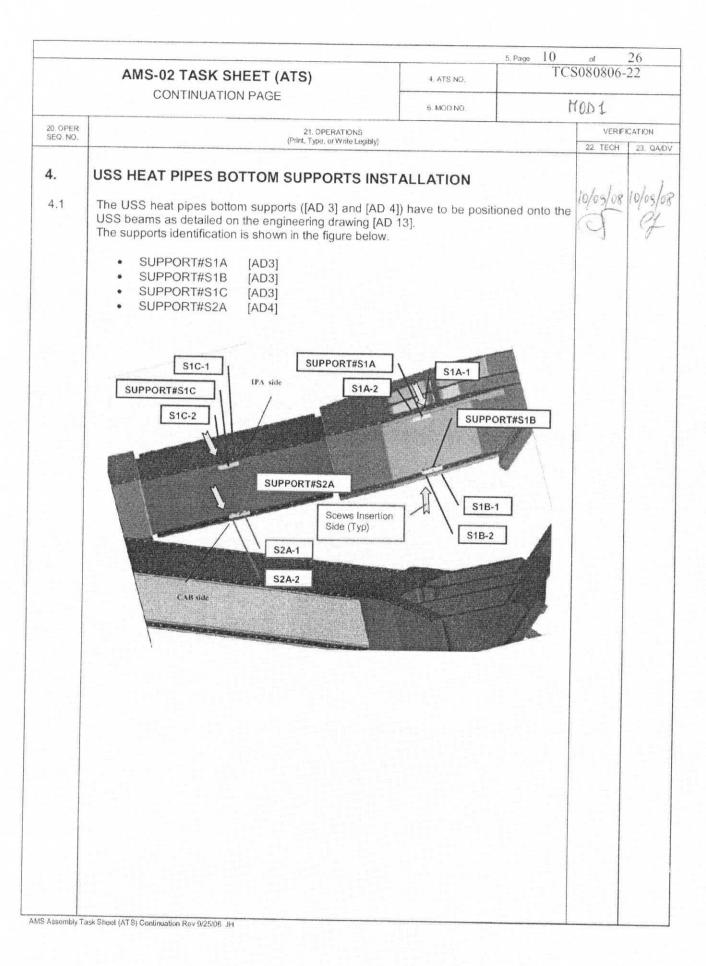
	AMS AS TACK OUTER		5. Page 5	of 26
	AMS-02 TASK SHEET (ATS)	4. ATS NO.	TCS	\$080806-22
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20. OPER SEQ. NO.	21. OPERATIONS			VERIFICATION
	(Print, Type, or Write Legibly)	).		22. TECH 23. Q
	FINAL INSTALLATION TORQUE MEASUREMENT  Final Torque (T) to be applied to each screw is the re Torque (LT) (measured) and the specified Seating To LT shall be measured using a calibrated torque wrench.  TORQUE (T) = SEATING TORQUE (ST) + LOCKING  SEATING TORQUE  HANDLING AND HARDWARE  Each operation on FM Hardware shall be do according to the following  All the integration activities shall be don  The AMS/CGS Project Engineer has the au this ATS out of ord  All the handling procedure shall be WARNING  CAUTION is necessary in the parts and to installation, in order to avoid damaging the  *Sheet (ATS) Continuation Rev 925/06 JH	INSTALLATION done wearing glovinstructions be by qualified persistency to work the der.	es and in sonnel.	

	AMS-02 TASK SHEET (ATS)	4. ATS NO.	5 Page 6	S080806	-26 -22
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20. OPER SEQ. NO.	21. OPERATIONS (Print, Type, or Write Legibly)			VERIF 22. TECH	ECATION 23, QA/D
1.	Open this ATS  NOTE: The work being done in this ATS is p Assembly SEG39135724-301 SN 1001. In subsect referred to as "USS"	quent steps, this	e USS-02 part will be		
2.	USS Surface Preparation Work				
	Perform the following preparatory work. All the below carried out in the AMS02 Clean Room	mentioned activities	es have to be		
2.1	Before starting the integration of the flight hardware hardware is installed in the relevant area:	on the USS parts	s verify which	10/0408 MV	10/06/08
	Hardware already installed on the USS: YES NO			riv	1
	If there is hardware already installed then identify this had ocumentation is available (hardware ID, PN, ATS used	ordware and check during the integrati	the applicable on,).		
	The following picture (only for reference) shows the H/W USS by the time of the present installation.	that might be mou	unted over the		atomic des continues de continu
	ONLY FOR REFERENCE				

	AMS-02 TASK SHEET (ATS)	1.770.45	5. Page /	S080800	26 5-22
	CONTINUATION PAGE	4. ATS NO.			
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SEQ. NO.	21, OPERATIONS (Print, Type, or Write Legibly)			22 TECH	FICATION  1 23. QA/DV
	USS H/W 1) CAB EBIS (INSTALLED FOR 2) I PA (TEHPORARY)	R FIT-CHECK)			
2.2	As a baseline AMS Mechanical Integration Team is pround the reinforce beams using the proper ATS. It is prosince it would not prevent from accessing the USS area of the final decision shall be taken at the AMS Integration of this ATS. All the identified H/W shall be removed by its re	site and properly di	the CAB EM IPA in place be installed, ocumented in	iolocilo8 MV	oloclas
	De-Install IPA as per TPS 2A0820 Procedure start date 10-06-08 Procedure and date 10-06-08 Designated Verifier K. BOLLWEG- De-Install CAB EMM as per AMS 02 task sheet	0065			10/04/00
	Procedure start date <u>08-15-08</u> Designated Verifier_  Procedure end date <u>10-06-08</u>	C. GAEGIVED			ef-
2.3	Rotate Rotation Assembly Stand (RAS) to make US Mechanical Integration Team procedure.	S up-side-down a	according to	0/06/08 12 L	10/00/08 W/S

——————————————————————————————————————	AMS-02 TASK SHEET (ATS)		4. ATS NO.	5 Page 8	CS080806-	26 -22
	CONTINUATION PAGE		6 MOD NO.		MOD 1	
20, OPER SEQ. NO.	21. OPERA (Print, Type, or W			L		ICATION
2.4	Perform an USS visual inspection in the AGHF		area shown in A	D[13].	10/06/08 11/06/08	23. QAR
2.5	Prepare the USS surface for the AGHP bonding	ng.			0/06/08	10/02/
2.6	Thoroughly degrease the cross-hatched area Alcohol (IPA) to prevent driving contaminants with clean lint free wipes or cloth.	a (according to s into surface	to the AD[13]) while abrading	with Isopropy J. Dry surface	1 10/06/08 e MV	10/06/ Cf
2.7	Tape off the non cross-hatched area using wh cross-hatched area with bare hands or dirty glo	ite masking ta oves.	ape. Do not touc	10/06/08 MV	10/06/0	
2.8	Mask off any other H/W remained in the area t	o prevent dus	at and debris.		10/06/08	10/66/6
2.9	Remove the surface anodization treatment by means of the buffing wheel tool available at AMS clean room. Get rid of any particle and dust formation by means of a vacuum cleaner.					
2.10	Wipe clean the surface using Isopropyl Alcoho	I (IPA)			10/06/09	10/06/0
2.11	Take pictures of the surface after the abrasion.				10/06/08	10/06/0
2.12	Protect the abraded area with a tape that doe be carried out in steps during the surface prepare	esn't leave an aration.	y residue. This	operation car	10/06/08 MU	ioloch Cf
3.	AGHP Preparation Work					
3.1	The AGHPs thermal hardware have to be rem and the visual inspection has to be performed.	oved carefully	y from the trans	port container	10/09/08	iologic
	Record the humidity indicator status:/	DT APP	UCOSLE		01	Cf
	Records any signs of damage:	MONE				1
3.2	Check the cleanliness of the parts to be insta Alcohol (IPA) and dry them with a clean towel.	alled. Clean t Let than the p	the dirty parts vo	with Isopropylean towel.	10/05/08	10/05/03
3.3	Prepare screws and washer to be used for the washers visual inspection. Clean screws, nuts and let the parts dry on a clean towel.	e installation. and washers	Perform a screen in an Isopropyl	ws, nuts and Alcohol bath	soled or	10/05/08
3.4	Prepare the tools needed for the installation. Al dust and grease.	I the tools have	ve to be clean a	nd free from	10/05/08	10/09/0
3.5	Weight all the flight hardware to be installed, the following table:	including fast	teners. Record	the weight in	10/09/08	10/03/0

	AMS-02 TASK SHEET (ATS)		4. ATS NO	TC	CS080806-22	
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20. OPER SEQ. NO.	21. Of (Print, Type	PERATIONS , or Write Legibly)	·			ICATION
	CAB USS AGHP - p/n IEF001-D-093 - 2 parts	2	X 0, 214 Ke		10/05/08	10/05/0
	CAB USS AGHP - p/n IEF001-D-094 - 1 part		0,217 Ke			Cf
	permanent items)	PIPE BOTTOM RETAINER	SUPPORTS 182	0,01316		
	permanent items)	RETAINER BOLTS & WA		0,013 16		



	AMS-02 TA			4 ATS NO.	TC	TCS080806-22		
	CONTI	NUATION PA	AGE	6. MOD NO.		MOD1		
OPER Q. NO.			21, OPERATIONS (Print, Type, or Write Legi	oly)		VERIFI 22. TECH	CATION 23. QA/D	
.2	USS heat pipes b	ottom suppor	rts installation and To	rque Setting		10/05/08	10/05/0	
	SUF	PPORT#S1	A - Screws NAS	1954C6 installation		191	CF	
		8	30 OVERVIEWS (NO SCALE)	10 / 00 / 00 / 00 / 00 / 00 / 00 / 00 /				
	Install and fasten "	by hand" the		C6 plus relative washer	rs —			
	NAS 15874C Record their lot nu							
	N° 2 SCREWS	NAS 1954	C6 LOT#	56412				
E	N° 2 WASHERS	NAS 1587	'4C LOT#	10650				
	STA-1 and STA-2 a	and write the	values in the below to	Locking Torque (LT) of able ble 1, .Page 4.of the position				
	Define the Final To below table.	rque (T) of so	crews S1A-1 and S1	A-2 and write the value	s in the			
			QUE (ST) + LOCKING					
	3 IA-2 according to	the values re	wrench set the Final eported in the below	Torque (T) of screws 5 able.	S1A-1 and			
		ng Torque) Im]	ST (Seating Torque [Nm]	[Nm]	measured)			
	S1A-2 2.8		8.35 through 9,82 8.35 through 9,82					

## 12 26 5. Page TCS080806-22 AMS-02 TASK SHEET (ATS) 4. ATS NO. CONTINUATION PAGE 6. MOD NO. MOS 1 20. OPER SEQ. NO. 21. OPERATIONS (Print, Type, or Write Legibly) VERIFICATION 22. TECH 23. GA/DV SUPPORT#S1B - Screws NAS 1954C6 installation Install and fasten "by hand" the 2 screws NAS 1954C6 plus relative washers NAS 15874C Record their lot number N° 2 SCREWS LOT# 36412 NAS 1954C6 LOT# T0650 N° 2 WASHERS NAS 15874C By means of a calibrated torque wrench measure the Locking Torque (LT) of screws S1B-1 and S1B-2 and write the values in the below table The expected Locking Torque value is reported in Table 1, .Page 4.of the present ATS Define the Final Torque (T) of screws S1B-1 and S1B-2 and write the values in the below table. TORQUE (T) = SEATING TORQUE (ST) + LOCKING TORQUE (LT) By means of a calibrated torque wrench set the Final Torque (T) of screws S1B-1 and S1B-2 according to the values reported in the below table. Screw LT (Locking Torque) ST (Seating Torque) T (Final Torque-measured) No [Nm] [Nm] S1B-1 8.35 through 9,82 S1B-2 8.35 through 9,82 Torque Wrench data - (Locking Torque definition) P/N 3/7-962V Cal. Due Date 15- MARCH-2008 Torque Wrench data - (Final Torque setting) P/N BAHCO 120 D30 M# 67433 Cal. Due Date 20 - NO V - 2008 AMS Assembly Task Sheet (ATS) Continuation Rev 9/25/06 JH

## 5. Page 26 TCS080806-22 AMS-02 TASK SHEET (ATS) 4. ATS NO CONTINUATION PAGE 6 MODING MOD1 20, OPER SEQ. NO. 21. OPERATIONS (Print Type, or Write Legibly) VERIFICATION 23. QA/DV SUPPORT#S1C (IPA-side) - Screws NAS 1954C3 installation Install and fasten "by hand" the 2 screws NAS 1954C3 plus relative washers NAS 15874C Record their lot number N° 2 SCREWS NAS 1954C3 LOT# 20715 N° 2 WASHERS NAS 15874C LOT# T06.50 By means of a calibrated torque wrench measure the Locking Torque (LT) of screws S1C-1 and S1C-2 and write the values in the below table The expected Locking Torque value is reported in Table 1, .Page 4.of the present ATS Define the Final Torque (T) of screws S1C-1 and S1C-2 and write the values in the below table. TORQUE (T) = SEATING TORQUE (ST) + LOCKING TORQUE (LT) By means of a calibrated torque wrench set the Final Torque (T) of screws S1C-1 and S1C-2 according to the values reported in the below table. Screw N° LT (Locking Torque) ST (Seating Torque) T (Final Torque-[Nm] [Nm] measured) [Nm] S1C-1\*\* 8.35 through 9,82 S1C-2 8.35 through 9,82 10. \*\*This screw is NOT the one foreseen in the flight design. This joint is shared with the Baroswitch electronics box and final screw/washer installation shall be carried out when the baroswitch box will be present. The current screw - NAS 1954C3 shall be replaced by NAS 1954C6 (flight design screw) and the relative seating torque shall be derived by the corresponding shared bolt analysis. To be covered in the Baroswitch electronic box installation ATS. AMS Assembly Task Sheet (ATS) Continuation Rev 9/25/06 JH

	AMS-02 TASK SHEET (ATS)		5. Page 14 TC	1 of 26 TCS080806-22		
	CONTINUATION PAGE	4. ATS NO.				
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### 15 5. Page AMS-02 TASK SHEET (ATS) TCS080806-22 4. ATS NO CONTINUATION PAGE 6. MOD NO. MOD 1 20. OPER SEQ. NO 21 OPERATIONS (Print, Type, or Write Legibly) VERIFICATION 22. TECH 23. QA/DV 10/03/08 SUPPORT#S2A (CAB-side)- Screws NAS 1954C9 installation NOTE: The following instructions have been prepared under the assumption that the CAB EB shall be dismounted from USS. Install and fasten "by hand" the 2 screws NAS 1954C9 plus relative washers NAS 15874C plus non-flight nuts to replace the missing CAB inserts. Record their lot number N° 2 SCREWS LOT# 11437 NAS 1954C9 N° ZWASHERS NAS 15874C LOT# TO 650 NºZ NUTS NAS 1291 CLM LOT\* R1115 Define the Final Torque (T) of screws S2A-1 and S2A-2 and write the values in the By means of a calibrated torque wrench set the Final Torque (T) of screws S2A-1 and S2A-2 according to the values reported in the below table. Screw N° LT (Locking Torque) ST (Seating Torque) T (Final Torque-measured ) [Nm] [Nm] [Nm] S2A-1\*\* 8.35 through 9,82 S2A-2\*\* 8.35 through 9,82 \*\* NOTE These screws are the same foreseen for the flight design. But the installation is not permanent since CAB unit is not in place and the CAB inserts are replaced by non-flight nuts provided by AMS MIteam. The final installation of these fasteners shall be covered by a dedicated ATS (down to AMS Integration Mechanical Team) and the relative seating torque shall be derived by the corresponding shared bolt analysis. Torque Wrench data - (Locking Torque definition) M#\_ 78380 \_\_\_Cal. Due Date\_15- HARCH -2008 P/N 317862V Torque Wrench data - (Final Torque setting) P/N3AHC0 120 D30 M# 67433 Cal. Due Date 20-NOV -2008 AMS Assembly Task Sheet (ATS) Continuation Rev 9/25/06 JH

16 26 5. Paga AMS-02 TASK SHEET (ATS) TCS080806-22 4. ATS NO CONTINUATION PAGE 6. MOD NO. MOB1 20, OPER SEQ. NO. 21. OPERATIONS (Print, Type, or Write Legibly) VERIFICATION 22. TECH | 23. QA/DV 5. AGHP FIT-CHECK The three AGHP's (AD[5],AD[6]) have to be positioned according to the engineering 10/05/03/05/03 5.1 drawing (AD[13]). After positioning and before the heat pipe retainers installation, the AGHP's are kept in right position using Kapton tape and/or Teflon pads. This shall be decided during the installation. 5.2 Install the two retainers as shown in the below figure. For the installation sequences |U/Oy/OX| |O/Oy/OX|follow the instruction reported in the tables in chapter 5.2 R2-1 R1-1 RETAINER#R2 R2-2 RETAINER#R1 R1-2 Apply the following instructions for screw Installation and torque setting 5.3 AMS Assembly Task Sheet (ATS) Continuation Rev 9/25/06 JH

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RETAINER #R1 - Screws NAS1352C08-10 fit-check  Install and fasten "by hand" the 2 screws NAS 1352C08-10 plus relative washers NAS 620 C8L Record their lot number  N° 2 SCREWS NAS 1352C08-10 LOT# 78219  N° 2 WASHERS NAS 620 C8L LOT# 3 3 0 3 8 5 - 18  By means of a calibrated torque wrench measure the Locking Torque (LT) of screws R1-1 and R1-2 and write the values in the below table The expected Locking Torque value is reported in Table 1, Page 4.of the present ATS  Define the Final Torque (T) of screws R1-1 and R1-2 and write the values in the below table.  TORQUE (T) = SEATING TORQUE (ST) + LOCKING TORQUE (LT)  By means of a calibrated torque wrench set the Final Torque (T) of screws R1-1 and R1-2 according to the values reported in the below table.  Screw LT (Locking Torque) ST (Seating Torque) T (Final Torque-measured) N° [Nm] [Nm] [Nm] [Nm]		1		AUL	6 MOD NO.		MOD 1		
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## 18 TCS080806-22 AMS-02 TASK SHEET (ATS) 4 ATS NO CONTINUATION PAGE MOD 1 6. MOD NO. 20. OPER SEQ. NO. VERIFICATION 21. OPERATIONS (Print, Type, or Write Legibly) 22 TECH 23. QA/DV RETAINER #R2 - Screws NAS1352C08-10 fit-check Install and fasten "by hand" the 2 screws NAS 1352C08-10 plus relative washers NAS 620 C8L Record their lot number N° 2 SCREWS NAS 1352C08-10 N° 2 WASHERS LOT# 330385-18 NAS 620 C8L By means of a calibrated torque wrench measure the Locking Torque (LT) of screws R2-1 and R2-2 and write the values in the below table The expected Locking Torque value is reported in Table 1, .Page 4.of the present ATS Define the Final Torque (T) of screws R2-1 and R2-2 and write the values in the below table. TORQUE (T) = SEATING TORQUE (ST) + LOCKING TORQUE (LT) By means of a calibrated torque wrench set the Final Torque (T) of screws R2-1 and R2-2 according to the values reported in the below table. Screw LT (Locking Torque) ST (Seating Torque) T (Final Torque-measured ) No [Nm] [Nm] [Nm] R2-1 1,0 +-10% R2-2 1,0 +-10% Torque Wrench data - (Locking Torque definition) M# 78380 Cal. Due Date 15-11ARCH-2008 P/N 3/7862V Torque Wrench data - (Final Torque setting) P/N 317962V M# 78380 Cal. Due Date 15- NARCH -2008 AMS Assembly Task Sheet (ATS) Continuation Rev 9/25/06 JH

	AMS-02 TASK SHEET  CONTINUATION PAGE	AGE		Т	TCS080806-22		
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5.4	After completing the installation if significant gaps are present be	a visual inspection has to	be carried out in all along the conta	order to chec act area.	10/05/0 Q/	ir 10/08	
		AGHP		uss			
	Take pictures of the assembly dor  Heat Pipe dismounting and	d AGHP removal					
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.1	After the fit check both retainers removed from the USS structure.  All the removed parts have to be induring the final integration activity.  After removing, in the following table.  PARTS  Screw and Washer R1-1 Screw and Washer R1-2 Heat pipe Retainer R1 Screw and Washer R2-1 Screw and Washer R2-1 Screw and Washer R2-2 Heat pipe Retainer R2	AGHP removal  s [AD1] and [AD2] and All the removed parts had dentified in order to be re (AGHP's gluing).  Die fill the box "Parts State  PARTS STATUS  REHOVED REHOVED REHOVED REHOVED REHOVED REHOVED REHOVED REHOVED	AGHP's AD[5],A ye to be carefully a positioned in the	nandled. same place "REMOVED"	10/08/08	CP	
.1 2 3	After the fit check both retainers removed from the USS structure.  All the removed parts have to be induring the final integration activity.  After removing, in the following table.  PARTS  Screw and Washer R1-1  Screw and Washer R1-2  Heat pipe Retainer R1  Screw and Washer R2-1  Screw and Washer R2-1  Screw and Washer R2-2	AGHP removal  s [AD1] and [AD2] and All the removed parts had dentified in order to be re (AGHP's gluing).  ble fill the box "Parts State  PARTS STATUS  REMOVED REMOVED REMOVED REMOVED REMOVED REMOVED	AGHP's AD[5],A ye to be carefully a positioned in the	nandled. same place "REMOVED"	10/08/08	CP	

#### 20 5. Page 26 TCS080806-22 AMS-02 TASK SHEET (ATS) 4. ATS NO. CONTINUATION PAGE 6. MOD NO. MODE 20. OPER SEQ. NO. 21. OPERATIONS (Print, Type, or Write Legibly) VERIFICATION 22. TECH | 23. QA/DV 7. AGHP GLUING (with Adhesive ECCOBOND 285 Catalyst 23LV) SEE MOD1 The AGHP gluing process shall be carried out - as a base-line - in three steps. Each 7.1 AGHP shall be glued at a time and secure with the heat pipe retainers temporarily using non flight screws (i.e. shorter than the flight ones) to avoid the engagement of the locking device. In case the gluing process should result in being quicker than estimated and compatible with the glue pot-life the gluing of the three pipes shall be done in a single step and the change shall be tracked in a MOD. Remove the protective cover kapton tape from the center line of the two parts of the USS 7.2 upper trunnion beam and Upper VC IF joint. 7.3 Wipe clean the USS uncovered surface with Isopropyl Alcohol (IPA). Take the central AGHP - see AD[13] - and remove the kapton protective tape off the 7.4 contact area of the flange. 7.5 Wipe clean the AGHP flange surface with Isopropyl Alcohol (IPA). 7.6 Prepare the epoxy paste adhesive for AGHP IEF001-D-093 bonding according to glue procedure (AD[12]), properly filling out the procedure mixture record (to be added at the end to the ATS) with: the glue lot No, part no, expiration data and mixture ratio. 7.7 Apply a thin glue layer with a spatula onto the AGHP IEF001-D-093 at the contact flange surface. Apply a thin center line layer with a spatula on the uncovered prepared surface of the 7.8 USS upper trunnion beam and VC IF joint. Position the AGHP IEF001-D-093 pipe onto the USS according to the AD[13]. 7.9 Keep the AGHP in position by hand and apply Kapton tape able to maintain the position 7.10 wrt. the USS structure. Install the heat pipe retainers – both the flight and the temporary – using not flight screws 7.11 to avoid the engagement of the locking device. 7.12 Remove the Kapton tape. 7.13 In addition to the heat pipe retainers, install additional clamps and the Teflon pads to distribute adequately the pressure all over the pipe length. Due to the heat pipe retainer and clamp installation some glue might squeeze out off the 7.14 edge. Check the meniscus all over the edge of the AGHP contact flange and adjust it in order to have an excess of glue not more than 1mm off the flange edge. 7.15 Take pictures of the assembly. Wait for the lower limit of the curing time (i.e. 16 hours) described in AD [7]. 7.16 7.17 Remove the clamps and the heat pipe retainers AMS Assembly Task Sheet (ATS) Continuation Rev 9/25/06 JH

	AMS 02 TACK CHEET (ATO)	5. Page 21 of 26 TCS080806-22				
	AMS-02 TASK SHEET (ATS)  CONTINUATION PAGE	4. ATS NO				
20 OPER	21. OPERATIONS	6. MOD NO.	MOD1			
SEQ. NO.	(Print, Type, or Write Legibly)			22. TECH	23. QAD	
7.18	Remove the protective cover kapton tape from the CAB s upper trunnion beam and Upper VC IF joint.	ide of the two part	s of the USS			
7.19	Wipe clean the USS uncovered surface with Isopropyl Alc	cohol (IPA).				
7.20	Take the AGHP IEF001-D-093 and remove the kapton area of the flange	protective tape of	off the contact			
7.21	Wipe clean the AGHP flange surface with Isopropyl Alcoh					
7.22	Prepare the epoxy paste adhesive for AGHP IEF001-D-procedure (AD[12]), properly filling out the procedure mix end to the ATS) with: the glue lot No, part no, expiration dis	ture record (to be	added at the			
7.23	Apply a thin glue layer with a spatula onto the AGHP at the					
7.24	Apply a thin line layer with a spatula on the uncovered prepared surface of the USS upper trunnion beam and VC IF joint.					
7.25	Position the AGHP onto the USS according to the AD[13].					
7.26	Keep AGHP in position by hand and apply Kapton tape at the USS structure.					
7.27	Check the meniscus all over the edge of the AGHP contact flange and adjust it in order to have an excess of glue not more than 1mm off the flange edge.					
7.28	Install the heat pipe retainers – both the flight and the temp to avoid the engagement of the locking device.	orary – using not	flight screws			
7.29	Remove the Kapton tape.					
7.30	In addition to the heat pipe retainers, install additional cl distribute adequately the pressure all over the pipe length.	lamps and the Te	eflon pads to			
7.31	Due to the heat pipe retainer and clamp installation some edge. Check the meniscus all over the edge of the AGHP order to have an excess of glue not more than 1mm off the					
7.32	Take pictures of the assembly.					
7.33	Wait for the lower limit of the curing time (i.e. 16 hours) des	cribed in AD [7].				
7.34	Remove the clamps and the heat pipe retainers					
7.35	Remove the protective cover kapton tape from the IPA sid- upper trunnion beam and Upper VC IF joint.	e of the two parts	of the USS		and the second s	
.36	Wipe clean the USS uncovered surface with Isopropyl Alcoh	nol (IPA).				
7.37	Take the AGHP IEF001-D-094 and remove the kapton prarea of the flange	rotective tape off	the contact			

## 5. Page 26 AMS-02 TASK SHEET (ATS) TCS080806-22 4. ATS NO. CONTINUATION PAGE 6. MOD NO. MODE 20. OPER SEQ. NO. 21. OPERATIONS (Print, Type, or Write Legibly) VERIFICATION 22, TECH 23, QA/DV Wipe clean the AGHP flange surface with Isopropyl Alcohol (IPA). 7.38 Prepare the epoxy paste adhesive for AGHP bonding according to glue procedure 7.39 (AD[12]), properly filling out the procedure mixture record (to be added at the end to the ATS) with: the glue lot No, part no, expiration data and mixture ratio. Apply a thin glue layer with a spatula onto the AGHP at the contact flange surface. 7.40 Apply a thin line layer with a spatula on the uncovered prepared surface of the USS 7.41 upper trunnion beam and VC IF joint. 7.42 Position the AGHP pipe onto the USS according to the AD[13]. Keep AGHP in position by hand and apply Kapton tape able to maintain the position wrt. 7.43 the USS structure. 7.44 Check the meniscus all over the edge of the AGHP contact flange and adjust it in order to have an excess of glue not more than 1mm off the flange edge. Install the heat pipe retainers using flight screws 7.45 All the heat pipe retainers have to be installed in the same position as done during the fit-7.46 check carried out at previous step. R2-1 R1-1 RETAINER#R2 R2-2 RETAINER#R1 R1-2 AMS Assembly Task Sheet (ATS) Continuation Rev 9/25/06 JH

	AMS-02 TASK SHEET (ATS)		ET (ATS)	4, ATS NO.	TCS080806-22
CONTINUATION PAGE					Max
PER				6. MOD NO.	MOD 1
NO.			21. OPERATIONS (Print, Type, or Write Legibly		VERIFICAT
					22, TECH 2
		RE	TAINER #R1 - Inst	allation	
	1440 05	nd fasten "by hand" the 0 C8L their lot number	2 screws NAS 1352C0	08-10 plus relative was	shers
	N° 2 SC	REWS NAS 1135	2C08-10 LOT#		
	NIO O VAL		<i>(1)</i>		
	IN S AA	ASHERS NAC 600			1-1
- 1	By mea	ns of a calibrated torque d R1-2 and write the va	wrench measure the l		
	By meal R1-1 an The exp Define to table. TORQU	ns of a calibrated torque	e wrench measure the I lues in the below table ralue is reported in Tab crews R1-1 and R1-2 a QUE (ST) + LOCKING wrench set the Final T ported in the below tabl  ST (Seating Torque) [Nm]	le 1, .Page 4.of the pr nd write the values in TORQUE (LT) forque (T) of screws F e.	the below
	By mean R1-1 and The exposition Define to table.  TORQU  By mean R1-2 according Screw N°	ns of a calibrated torqued R1-2 and write the valuected Locking Torque value Final Torque (T) of some Final Torque (T) of some Final Torque (T) as of a calibrated torque cording to the values report (LT (Locking Torque)	e wrench measure the I lues in the below table ralue is reported in Tab crews R1-1 and R1-2 a QUE (ST) + LOCKING wrench set the Final T ported in the below tabl ST (Seating Torque)	le 1, .Page 4.of the prond write the values in TORQUE (LT) forque (T) of screws Fe.	the below
	By mean R1-1 and The exposition Define to table.  TORQU  By mean R1-2 according Screw N° R1-1 R1-2	ns of a calibrated torqued R1-2 and write the valuected Locking Torque value Final Torque (T) of some Final Torque (T) of some Final Torque (T) as of a calibrated torque cording to the values report (LT (Locking Torque)	e wrench measure the I lues in the below table alue is reported in Tab crews R1-1 and R1-2 a QUE (ST) + LOCKING wrench set the Final T ported in the below table  ST (Seating Torque) [Nm] 1.24 through 1,7 1.24 through 1,7	le 1, .Page 4.of the prond write the values in TORQUE (LT) forque (T) of screws Fe.  T (Final Torque-mail [Nm]	the below  11-1 and  neasured )
F	By mean R1-1 and The exproper Define to table.  TORQU By mean R1-2 according N° R1-1 R1-2  Torque V	ns of a calibrated torque d R1-2 and write the valuected Locking Torque vone Final Torque (T) of some Final Torque (T) as of a calibrated torque coording to the values report (Locking Torque)  [Nm]  Vrench data - (Locking Torque)	wrench measure the I lues in the below table ralue is reported in Tab crews R1-1 and R1-2 accepts R1-1 acc	le 1, .Page 4.of the prond write the values in TORQUE (LT)  forque (T) of screws Fe.  T (Final Torque-ments [Nm]	the below  R1-1 and  neasured )

## TCS080806-22 AMS-02 TASK SHEET (ATS) 4 ATS NO. CONTINUATION PAGE MOD1 6. MOD NO. 20. OPER SEQ. NO. 21. OPERATIONS (Print, Type, or Write Legibly) VERIFICATION 22. TECH | 23. QA/DV RETAINER #R2 - Installation Install and fasten "by hand" the 2 screws NAS 1352C08-10 plus relative washers NAS 620 C8L Record their lot number N° 2 SCREWS NAS 11352C08-10 LOT#\_\_ N° 2 WASHERS NAS 620 C8L LOT#\_ By means of a calibrated torque wrench measure the Locking Torque (LT) of screws R2-1 and R2-2 and write the values in the below table The expected Locking Torque value is reported in Table 1, .Page 4.of the present ATS Define the Final Torque (T) of screws R2-1 and R2-2 and write the values in the below table. TORQUE (T) = SEATING TORQUE (ST) + LOCKING TORQUE (LT) By means of a calibrated torque wrench set the Final Torque (T) of screws R2-1 and R2-2 according to the values reported in the below table. LT (Locking Torque) Screw ST (Seating Torque) T (Final Torque-measured) Nº [Nm] [Nm] [Nm] R2-1 1.24 through 1,7 R2-2 1.24 through 1,7 Torque Wrench data - (Locking Torque definition) P/N M#\_\_\_\_\_Cal. Due Date\_\_\_ Torque Wrench data - (Final Torque setting) P/N M# Cal. Due Date AMS Assembly Task Sheet (ATS) Continuation Rev 9/25/06 JH

#### 5. Page 26 AMS-02 TASK SHEET (ATS) TCS080806-22 4. ATS NO. CONTINUATION PAGE 6 MOD NO MODI 20 OPER SEQ. NO. 21. OPERATIONS (Print, Type, or Write Legibly) VERIFICATION 22. TECH | 23. QA/DV In addition to the heat pipe retainers, install additional clamps and the Teflon pads to 7.47 distribute adequately the pressure all over the pipe length. Due to the heat pipe retainer and clamp installation some glue might squeeze out off the 7.48 edge. Check the meniscus all over the edge of the AGHP contact flange and adjust it in order to have an excess of glue not more than 1mm off the flange edge. 7.49 Take pictures of the assembly. Wait for the upper limit of the curing time (i.e. 24 hours) described (AD[7]). 7.50 7.51 When the curing is over and before the heat pipe temporary retainer removal, check if visible de-bonded areas are present. In presence of de-bonded areas a recovery action shall be carried out and it shall be managed by NCR. 7.52 Take pictures of the assembly. Heat Pipe Temporary retainer removal 8. Remove the parts listed in the following table and fill-in the box "parts status" with the 10/16/08/10/16/08 8.1 word REMOVED. All the removed parts shall be bagged and labelled as "not for flight" items. 8.2 **PARTS PARTS STATUS** REMARKS Screw and Washer R2-1 REHOVED Screw and Washer R2-2 REMOVED Retainer R2 REMOVED Screws and washers SUPPORT#S1A REMOVED SUPPORT#S1A REMOVED Screws and washesr SUPPORT#S1B REMOVED SUPPORT#S1B REMOVED RETAINER#R2 SUPPORT#S1A SUPPORT#S1B R2-2 AMS Assembly Task Sheet (ATS) Continuation Rev 9/25/06 JH

6. MOD NO.  removal, che out off-line cion.	ck if visible de	22. TECH	8 10/16/0 8 10/16/0
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out off-line o	on the sample	e- 10/16/0 10/16/0	23. OADO
out off-line o	on the sample	e- 10/16/2 es Q/ 10/16/2	8 10 116/0 Cf 8 10/16/0
s takes place.		10/16/0	Ct
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HE GU	MINE	10/16/08 QN	10/16/08 Cf

1. Open this MOD  2. The AGHP gluing process shall be carried out in one single step. Replace section 7 with the following steps.  2.1 Remove the protective kapton tape from the prepared surface of the two parts of the USS upper trunnion beam and Upper VC IF joint.  2.2 Wipe clean the USS prepared surfaces with Isopropyl Alcohol (IPA).  2.3 Mask off all the USS surrounding parts and position the reference jig for precise pipes positioning.  2.4 Take each AGHP and remove the no-residue protective tape off the contact area of the flanges.  2.5 Wipe clean the AGHP flanges surface with Isopropyl Alcohol (IPA).  2.6 Prepare the epoxy paste adhesive for the AGHPs bonding according to glue procedure (AD[12]), properly filling out the procedure mixture record (to be added at the end to the ATS) with: the glue lot No, part no, expiration data and mixture ratio.	AMS-02 TASK SHEET (ATS)						
PERMANENT   Mask off all the USS prepared surfaces with Isopropyl Alcohol (IPA).   10/12	1 of						
B   NONCONFIGURATION CHANGE   11. Sub Detector Name   12. SERIALIZOT NO.							
AMS02 USS parts  14. APPLICABLE DOCUMENTS  15. ASTITUE  USS AGHP INTEGRATION ONTO AMS02  20. OPER PROPINTS  1. Open this MOD  2. The AGHP gluing process shall be carried out in one single step. Replace section 7 with the following steps.  2.1 Remove the protective kapton tape from the prepared surface of the two parts of the USS upper trunnion beam and Upper VC IF joint.  2.2 Wipe clean the USS prepared surfaces with Isopropyl Alcohol (IPA).  2.3 Mask off all the USS surrounding parts and position the reference jig for precise pipes positioning.  2.4 Take each AGHP and remove the no-residue protective tape off the contact area of the IO/II5 (IG/II5).  2.5 Wipe clean the AGHP flanges surface with Isopropyl Alcohol (IPA).  2.6 Prepare the epoxy paste adhesive for the AGHPs bonding according to glue procedure (AD[12]), properly filling out the procedure mixture record (to be added at the end to the ATS) with: the glue lot No, part no, expiration data and mixture ratio.							
16. ATS TITLE  USS AGHP INTEGRATION ONTO AMS02  20. OPER SEG. NO.  1. Open this MOD  2. The AGHP gluing process shall be carried out in one single step. Replace section 7 with the following steps.  2.1 Remove the protective kapton tape from the prepared surface of the two parts of the USS upper trunnion beam and Upper VC IF joint.  2.2 Wipe clean the USS prepared surfaces with Isopropyl Alcohol (IPA).  2.3 Mask off all the USS surrounding parts and position the reference jig for precise pipes positioning.  2.4 Take each AGHP and remove the no-residue protective tape off the contact area of the flanges.  2.5 Wipe clean the AGHP flanges surface with Isopropyl Alcohol (IPA).  2.6 Prepare the epoxy paste adhesive for the AGHPs bonding according to glue procedure (AD[12]), properly filling out the procedure mixture record (to be added at the end to the ATS) with: the glue lot No, part no, expiration data and mixture ratio.							
1. Open this MOD  2. The AGHP gluing process shall be carried out in one single step. Replace section 7 with the following steps.  2.1 Remove the protective kapton tape from the prepared surface of the two parts of the USS upper trunnion beam and Upper VC IF joint.  2.2 Wipe clean the USS prepared surfaces with Isopropyl Alcohol (IPA).  2.3 Mask off all the USS surrounding parts and position the reference jig for precise pipes positioning.  2.4 Take each AGHP and remove the no-residue protective tape off the contact area of the flanges.  2.5 Wipe clean the AGHP flanges surface with Isopropyl Alcohol (IPA).  2.6 Prepare the epoxy paste adhesive for the AGHPs bonding according to glue procedure (AD[12]), properly filling out the procedure mixture record (to be added at the end to the ATS) with: the glue lot No, part no, expiration data and mixture ratio.							
1. Open this MOD  The AGHP gluing process shall be carried out in one single step. Replace section 7 with the following steps.  Remove the protective kapton tape from the prepared surface of the two parts of the USS upper trunnion beam and Upper VC IF joint.  Wipe clean the USS prepared surfaces with Isopropyl Alcohol (IPA).  Mask off all the USS surrounding parts and position the reference jig for precise pipes positioning.  Take each AGHP and remove the no-residue protective tape off the contact area of the flanges.  Wipe clean the AGHP flanges surface with Isopropyl Alcohol (IPA).  Take each AGHP and remove the no-residue protective tape off the contact area of the flanges.  Wipe clean the AGHP flanges surface with Isopropyl Alcohol (IPA).  Prepare the epoxy paste adhesive for the AGHPs bonding according to glue procedure (AD[12]), properly filling out the procedure mixture record (to be added at the end to the ATS) with: the glue lot No, part no, expiration data and mixture ratio.							
1. Open this MOD  2. The AGHP gluing process shall be carried out in one single step. Replace section 7 with the following steps.  2.1 Remove the protective kapton tape from the prepared surface of the two parts of the USS upper trunnion beam and Upper VC IF joint.  2.2 Wipe clean the USS prepared surfaces with Isopropyl Alcohol (IPA).  2.3 Mask off all the USS surrounding parts and position the reference jig for precise pipes positioning.  2.4 Take each AGHP and remove the no-residue protective tape off the contact area of the flanges.  2.5 Wipe clean the AGHP flanges surface with Isopropyl Alcohol (IPA).  2.6 Prepare the epoxy paste adhesive for the AGHPs bonding according to glue procedure (AD[12]), properly filling out the procedure mixture record (to be added at the end to the ATS) with: the glue lot No, part no, expiration data and mixture ratio.							
1. Open this MOD  2. The AGHP gluing process shall be carried out in one single step. Replace section 7 with the following steps.  2.1 Remove the protective kapton tape from the prepared surface of the two parts of the USS upper trunnion beam and Upper VC IF joint.  2.2 Wipe clean the USS prepared surfaces with Isopropyl Alcohol (IPA).  2.3 Mask off all the USS surrounding parts and position the reference jig for precise pipes positioning.  2.4 Take each AGHP and remove the no-residue protective tape off the contact area of the flanges.  2.5 Wipe clean the AGHP flanges surface with Isopropyl Alcohol (IPA).  2.6 Prepare the epoxy paste adhesive for the AGHPs bonding according to glue procedure (AD[12]), properly filling out the procedure mixture record (to be added at the end to the ATS) with: the glue lot No, part no, expiration data and mixture ratio.	VERFICATION						
2. The AGHP gluing process shall be carried out in one single step.  Replace section 7 with the following steps.  2.1 Remove the protective kapton tape from the prepared surface of the two parts of the USS upper trunnion beam and Upper VC IF joint.  2.2 Wipe clean the USS prepared surfaces with Isopropyl Alcohol (IPA).  Mask off all the USS surrounding parts and position the reference jig for precise pipes positioning.  Take each AGHP and remove the no-residue protective tape off the contact area of the flanges.  Wipe clean the AGHP flanges surface with Isopropyl Alcohol (IPA).  Prepare the epoxy paste adhesive for the AGHPs bonding according to glue procedure (AD[12]), properly filling out the procedure mixture record (to be added at the end to the ATS) with: the glue lot No, part no, expiration data and mixture ratio.	TECH 23						
Remove the protective kapton tape from the prepared surface of the two parts of the USS upper trunnion beam and Upper VC IF joint.  Wipe clean the USS prepared surfaces with Isopropyl Alcohol (IPA).  Mask off all the USS surrounding parts and position the reference jig for precise pipes positioning.  Take each AGHP and remove the no-residue protective tape off the contact area of the flanges.  Wipe clean the AGHP flanges surface with Isopropyl Alcohol (IPA).  Wipe clean the AGHP flanges surface with Isopropyl Alcohol (IPA).  Prepare the epoxy paste adhesive for the AGHPs bonding according to glue procedure (AD[12]), properly filling out the procedure mixture record (to be added at the end to the ATS) with: the glue lot No, part no, expiration data and mixture ratio.							
upper trunnion beam and Upper VC IF joint.  2.2 Wipe clean the USS prepared surfaces with Isopropyl Alcohol (IPA).  2.3 Mask off all the USS surrounding parts and position the reference jig for precise pipes positioning.  2.4 Take each AGHP and remove the no-residue protective tape off the contact area of the flanges.  2.5 Wipe clean the AGHP flanges surface with Isopropyl Alcohol (IPA).  2.6 Prepare the epoxy paste adhesive for the AGHPs bonding according to glue procedure (AD[12]), properly filling out the procedure mixture record (to be added at the end to the ATS) with: the glue lot No, part no, expiration data and mixture ratio.							
2.3 Mask off all the USS surrounding parts and position the reference jig for precise pipes lo/list positioning.  2.4 Take each AGHP and remove the no-residue protective tape off the contact area of the flanges.  2.5 Wipe clean the AGHP flanges surface with Isopropyl Alcohol (IPA).  2.6 Prepare the epoxy paste adhesive for the AGHPs bonding according to glue procedure (AD[12]), properly filling out the procedure mixture record (to be added at the end to the ATS) with: the glue lot No, part no, expiration data and mixture ratio.	5/08/10/						
positioning.  2.4 Take each AGHP and remove the no-residue protective tape off the contact area of the flanges.  2.5 Wipe clean the AGHP flanges surface with Isopropyl Alcohol (IPA).  2.6 Prepare the epoxy paste adhesive for the AGHPs bonding according to glue procedure (AD[12]), properly filling out the procedure mixture record (to be added at the end to the ATS) with: the glue lot No, part no, expiration data and mixture ratio.	5/08/10/						
2.5 Wipe clean the AGHP flanges surface with Isopropyl Alcohol (IPA).  2.6 Prepare the epoxy paste adhesive for the AGHPs bonding according to glue procedure (AD[12]), properly filling out the procedure mixture record (to be added at the end to the ATS) with: the glue lot No, part no, expiration data and mixture ratio.	109 10/1						
2.6 Prepare the epoxy paste adhesive for the AGHPs bonding according to glue procedure (AD[12]), properly filling out the procedure mixture record (to be added at the end to the ATS) with: the glue lot No, part no, expiration data and mixture ratio.	108 10/1						
Prepare the epoxy paste adhesive for the AGHPs bonding according to glue procedure (AD[12]), properly filling out the procedure mixture record (to be added at the end to the ATS) with: the glue lot No, part no, expiration data and mixture ratio.	108 10/11						
2.7 Apply a thin glue layer with a roller onto the AGHP IEF001-D-093 at the contact flange 10/15	10						
	108 10/1						
4. ORIGINATOR C. Vettore DATE 25. FINAL ACCEPTANCE STAMP AND DATE							
APPROVALS (Printed or Typed and Signed)							
PROJECT ENGINEER  C. Vettore  DATE  27. QUALITY ENGINEER  C. Gargiulo	DATE						
29.							
31.							

#### 5. Page AMS-02 TASK SHEET (ATS) TCS080806-22-MOD1 4. ATS NO. CONTINUATION PAGE 6 MOD NO 20. OPER SEQ. NO. 21. OPERATIONS (Print, Type, or Write Legibly) VERIFICATION 22. TECH 23. QA/DV Apply a thin line layer with a spatula on the relevant uncovered prepared surface of the 2.8 USS upper trunnion beam and VC IF joint where the former AGHP has to be placed. 10/15/08 10/15/08 Position the AGHP IEF001-D-093 pipe onto the USS according to the AD[13]. 2.9 10/15/08 2.10 Take pictures of the assembly. 10/15/08 Apply a thin glue layer with a roller onto the AGHP IEF001-D-093 at the contact flange 2.11 surface. 19/15/08 2.12 Apply a thin line layer with a spatula on the relevant uncovered prepared surface of the 10/15/08 10/15/08 USS upper trunnion beam and VC IF joint where the former AGHP has to be placed. CH Position the AGHP IEF001-D-093 pipe onto the USS according to the AD[13] 2.13 10/15/08 10/15/08 2.14 Take pictures of the assembly. 10/15/08 10/15/08 2.15 Apply a thin glue layer with a roller onto the AGHP IEF001-D-094 at the contact flange 10/15/08 surface. 10/15/03 Apply a thin line layer with a spatula on the relevant uncovered prepared surface of the 2.16 USS upper trunnion beam and VC IF joint where the AGHP has to be placed. 10/15/08 10/15/08 01 Position the AGHP IEF001-D-094 pipe onto the USS according to the AD[13] 2.17 10/15/08 10/15/08 Install the heat pipe retainers using flight screws 2.18 10/15/08 All the heat pipe retainers have to be installed in the same position as done during the fit-2.19 check carried out at previous step. 10/15/08 R2-1 R1-1 RETAINER#R2 R2-2 RETAINER#R1 R1-2

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### 5. Page AMS-02 TASK SHEET (ATS) TCS080806-22-MOD1 4. ATS NO CONTINUATION PAGE 6 MOD NO 20. OPER SEQ. NO. 21. OPERATIONS (Print, Type, or Write Legibly) VERIFICATION 22. TECH 23. QA/DV **RETAINER #R1** - Installation Install and fasten "by hand" the 2 screws NAS 1352C08-10 plus relative washers NAS 620 C8L Record their lot number N° 2 SCREWS NAS 11352C08-10 LOT# 79219 N° 2 WASHERS LOT# 330385-18 NAS 620 C8L By means of a calibrated torque wrench measure the Locking Torque (LT) of screws R1-1 and R1-2 and write the values in the below table The expected Locking Torque value is reported in Table 1, .Page 4.of the present ATS Define the Final Torque (T) of screws R1-1 and R1-2 and write the values in the below TORQUE (T) = SEATING TORQUE (ST) + LOCKING TORQUE (LT) By means of a calibrated torque wrench set the Final Torque (T) of screws R1-1 and R1-2 according to the values reported in the below table. Screw LT (Locking Torque) ST (Seating Torque) T (Final Torque-measured ) Nº [Nm] [Nm] [Nm] R1-1 05 1.24 through 1,7 2-0 R1-2 1.24 through 1,7 2.0 Torque Wrench data - (Locking Torque definition) P/N 317962V 78380 \_\_\_\_Cal. Due Date\_15 - HARCH - 2008 Torque Wrench data - (Final Torque setting) P/N 317862V M# 78380 Cal. Due Date 15-HARCH-2008 AMS Assembly Task Sheet (ATS) Continuation Rev 9/25/06 JH

## 5. Page AMS-02 TASK SHEET (ATS) TCS080806-22-MOD1 4. ATS NO. CONTINUATION PAGE 6. MOD NO. 20. OPER SEQ. NO 21. OPERATIONS (Print, Type, or Write Legibly) VERFICATION 22 TECH 23. QA/DV 10/15/08 10/15/08 RETAINER #R2 - Installation Install and fasten "by hand" the 2 screws NAS 1352C08-10 plus relative washers NAS 620 C8L Record their lot number N° 2 SCREWS NAS 11352C08-10 LOT# 78218 N° 2 WASHERS NAS 620 C8L LOT#\_ 330385-18 By means of a calibrated torque wrench measure the Locking Torque (LT) of screws R2-1 and R2-2 and write the values in the below table The expected Locking Torque value is reported in Table 1, .Page 4.of the present ATS Define the Final Torque (T) of screws R2-1 and R2-2 and write the values in the below table. TORQUE (T) = SEATING TORQUE (ST) + LOCKING TORQUE (LT) By means of a calibrated torque wrench set the Final Torque (T) of screws R2-1 and R2-2 according to the values reported in the below table. Screw LT (Locking Torque) ST (Seating Torque) T (Final Torque-measured ) No [Nm] [Nm] R2-1 1.24 through 1,7 R2-2 D. 1.24 through 1,7 Torque Wrench data - (Locking Torque definition) 317862V Cal. Due Date 15-MARCH -2008 Torque Wrench data - (Final Torque setting) 317962V M# 78380 Cal. Due Date 15-17ARCH-2008 AMS Assembly Task Sheet (ATS) Continuation Rev 9/25/06 JH

# 5. Page AMS-02 TASK SHEET (ATS) TCS080806-22-MOD1 4. ATS NO CONTINUATION PAGE 6. MOD NO. 20. OPER SEQ. NO. 21. OPERATIONS (Print, Type, or Write Legibly) VERIFICATION 22. TECH 23. QA/DV In addition to the heat pipe retainers, install additional weights to distribute properly the 2.20 pressure all over the pipe length. 2.21 Due to the heat pipe retainer and additional weights some glue might squeeze out off the edge. Check the meniscus all over the edge of the AGHPs contact flanges and adjust it in order to have an excess of glue not more than 1mm off the flanges edge. 2.22 Take pictures of the assembly. Wait for the upper limit of the curing time (i.e. 24 hours) described (AD[7]). 2.23 When the curing is over and before the heat pipe temporary retainer removal, check if 2.24 17:00 visible de-bonded areas are present. In presence of de-bonded areas a recovery action shall be carried out and it shall be managed by NCR. 10/16/08 2.25 Take pictures of the assembly. 3. Close this MOD AMS Assembly Task Sheet (ATS) Continuation Rev 9/25/06 JH

## THERMAL HARDWARE

ADHESIVE MIXTURE RECOR	No. (JJ / MM / DD /	No.):	1 1	1
Adhesive (Part A): ECCOBON	D 285	Color: B	lack paste	
Adhesive (Part B): Catalyst 23			OW COLO	R
AAE-Ref. (Part A): Golli:		EoL:		
AAE Ref. (Part B): Colli: "		EoL: "		
Project Code: AMS02	Reference Doc.: A	MSTCS	-PR-CG	5-019
Mixture Ratio (by weight):	Part A : Part B = 100			
Used balance (IDNr.):		; ne	kt cal.:	•
Part A: nominal 100	g	actual:	100	g
Part B: nominal: 7,3	, g	actual:	7,3	g
Environment: Cleanroom	Non-Cleanroom ☐ Ter	np.: ° C	/ Humidity:	% r. H.
Time / Start: 1445 10/15/200	Homogeneity of n	nixture: 🗵		
Time of Last Bonding: 15 40/45	Pot Life: max. 60 m	nin. 💢		
Minimum Cure Time at room-temp				
Cure-Time before Loading (Cure a	t 25° C): 24 h			
	ccording to procedure 🗶	AMSTCS-F	R-CGS-019	
	alternative Aluminium □			M
Samples marked with Proj. Code,	Record No. and Sample-S	Serial No.: p	erformed by	11
Bonded Items (ref. to General Arra	ngement):			
				900000000000000000000000000000000000000
				0.000
Remarks:	LOT NUMBER		EXPLANO	NDATE
EC 285	£ 12171		07/08/2	009
CATALVST 23LV	≠ 12453	8	7/14/2	(0))
	/		1	
				The state of the s
Location: CELN / CLEAN	Performed by	*	<b>X</b>	AAA I SINISAA AROO MAAA AROO MAAAA AROO MAAAA AROO MAAA AROO MAAAA AROO MAAA AROO MAAAA AROO MAAAAA AROO MAAAA AROO MAAAAA AROO MAAAA AROO MAAAA AROO MAAAA AROO MAAAA AROO MAAAAA AROO MAAAAA ARO